

# SERIES/PARALLEL TURBOCHARGERS AND SWITCHABLE HIGH/LOW PRESSURE EGR FOR INTERNAL COMBUSTION ENGINES

## Abstract

Systems and methods for turbocharging an internal combustion engine include operating two turbochargers in a series configuration for a first operating region and a parallel configuration for a second operating region. Systems and methods for controlling exhaust gas recirculation (EGR) in a turbocharged internal combustion engine provide low pressure EGR upstream of a compressor inlet for a first operating region and high pressure EGR downstream of a compressor outlet for a second operating range to further improve turbocharger operating margin and overall efficiency.